Sybase Server Maintenance

Presented by:

SPS Customer Response Team

Topics Covered

- Server Maintenance Schedule
- DBCC
- Backups
- Monitor Free Space
- Dumping the Transaction Log
- Examining the Error Logs
- Update Statistics
- Recompile Stored Procedures
- Monitor Resource Utilization on the Server

Server Maintenance Schedule

Task	Daily	Weekly	Twice a Month
DBCC			
Checkdb		✓	
Checkalloc		✓	
Checkcatalog		✓	

Maintenance Schedule (Cont.)

Tasks	Daily	Weekly	Twice a Month
Backups			
Production	✓		
Interface (IDB)	✓		
Acquiline	✓		
master		✓	
sybsystemprocs			✓
sybsecurity			✓
model			✓

Maintenance Schedule (Cont.)

Task	Daily	Weekly	Twice a Month
Monitor Free Space (db and log)		✓	
Dump the Transaction Log	✓		
Examine Error Logs		✓	
Update Statistics			✓
Recompile Stored Procedures			✓
Monitor Resources on the Server			✓

DBCC Checkdb

- Checks each table in the database to verify:
  - Data pages and indexes are linked correctly
  - Indexes are sorted properly
  - Pointers are consistent
  - Data rows have entries in the OAM page

DBCC Checkdb (Cont.)

- Syntax:

```
DBCC checkdb (<database_name>)
```

  * Replace <database_name> with the name of the database that you want to check

- Example:

```
DBCC checkdb (master)
```

  * If the database name is omitted then the current database will be checked

DBCC Checkcatalog

- Checks the system tables in the database to verify that:
  - Every data type in *syscolumns* has a matching entry in *systypes*
  - Every table and view in *sysobjects* has at least one row in *syscolumns*
  - The last checkpoint in *syslogs* is valid
  - The segment definitions in *syssegments* are valid

DBCC Checkcatalog (Cont.)

- Syntax:

```
DBCC checkcatalog (<database_name>)
```

  * Replace <database_name> with the name of the database that you want to check

- Example:

```
DBCC checkcatalog (master)
```

  * If the database name is omitted then the current database will be checked

DBCC Checkalloc

- Checks the specified database to verify that:
  - All pages are correctly allocated
  - No page is allocated that is not used
  - No page is used that is not allocated
  - All allocation pages contain valid information

DBCC Checkalloc (Cont.)

- Syntax:

```
DBCC checkalloc (<database_name>)
```

  * Replace <database_name> with the name of the database that you want to check

- Example:

```
DBCC checkalloc (master)
```

  * If the database name is omitted then the current database will be checked

DBCC Notes

- Do not perform any DBCC commands while users are working in the database
- Scan the DBCC output for errors
- If an error appears in the DBCC output copy the *exact* error message and contact the SPS Help Desk

DBCC Notes (Cont.)

- Run all three checks weekly (nightly if possible)
- If you backed up a database that does not pass one of the database consistency checks, make sure you maintain (i.e. do not overwrite) any previous backups that have passed all the consistency checks.

Backup Notes

- Automate your backups
- Make sure that there is space available on the drive where your dump devices are located
- Try to maintain a week's worth of backups
- Try to test your backups at least twice a month by restoring them to a test database

Backup Notes (Cont.)

- Do not store your dump devices on the same physical disk as your database devices
- Monitor your backup log to make sure the backups are successfully completed
- If you use tape backups you may wish to backup the database to a disk then copy the backup to the tape

Backup Notes (Cont.)

- If you perform file system backups be aware that reconstructing the database from .dat files is no substitute for performing regular dumps to disk
- Keep in mind that file system backups cannot successfully backup .dat files when the server is online

Backup Notes (Cont.)

- AMS is only responsible for bringing a site back to its most recent *successful* backup
- Your database is only as secure as your data and transaction log backups
- Consider storing some backups offsite in case of a fire or earthquake

Monitoring Free Space Notes

- Increase the size of your production database when the free space drops below 100MB
- For sites that do not have the “truncate log on checkpoint” turned on in their database, try to automate your transaction log dumps and do not allow the free space in the log to drop below 10MB

Free Space Notes (Cont.)

- When increasing your database do so in increments of 500MB to 2000MB at a time
  - 500MB is the minimum device size that AMS recommends
  - 2000MB (2GB) is a Sybase device size limit for all Unix servers (except Digital Unix). For Windows NT servers the device size limit is 32GB.

Dumping Transaction Log

- All sites that are currently using PD² version 4.1a and 4.1b have the “truncate log on checkpoint” option turned on in their database.
- This option prevents the transaction log from filling up.
- In 4.1c sites can turn off the “truncate” option and begin performing automated backups of their transaction log.

Dumping Trans. Log (Cont.)

- Backing up the transaction log will allow a site to have up-to-the-minute recovery of their database in the event of a media failure.
- If a site performs an *hourly* dump of their transaction log, they can recover their database up to the last successful backup of their transaction log.
- Only an hour's worth of data may be lost.

Dumping Trans. Log (Cont.)

- Syntax:

```
dump tran <db_name> to <dev_name>
```

  * Replace <db_name> with the name of the database
  * Replace <dev_name> with the name of the dump device

- Example:

```
dump tran SPS_UIC_DB to
SPS_UIC_TRAN_0800_BACKUP
```

Dumping Trans. Log Notes

- Automate the dump transaction process and do not allow the free space to drop below 10MB
- If space runs out of the transaction log all transaction will be suspended and users will be locked out of PD² until space becomes available in the log
- Turn off the “truncate” option after running the Clause Database Installer.

Examine Error Logs

- Sybase SQL Server Error Log
  - Filename: errorlog
  - Location: c:\sybase\install NT
    $SYBASE/install Unix
- Captures information related to the server and the operating system on which it is installed
- Example: Device initialization, disconnects, configuration changes, server error messages, etc.

Examine Error Logs (Cont.)

- When examining the error log search for anything that reads “Error” or “Warning”
- Most error messages contain a number and a brief description of the problem
- Contact the Help Desk to get a detailed explanation of the error or check Sybase’s website for more information http://sybooks.sybase.com/srg1100e.html

Examine Error Logs (Cont.)

- Sybase Backup Server Error Log
  - Filename: backup.log
  - Location: c:\sybase\install NT
    $SYBASE/install Unix
- Captures information about each backup and restore performed by the server
- Example: Backup/Restore initiation, progress and completion, server reboots, etc.

Examine Error Logs (Cont.)

- Monitor the backup log to determine if your backups are successful
- Backups fail when the device becomes full or corrupt or when the disk where the backup is located runs out of space
- Errors that are found in the backup log should be corrected immediately to guarantee a successful recovery of the data in the event of a media failure

Update Statistics

- Easiest way to improve the performance of the database
- Run the update statistics command:
  - After upgrading your database
  - After running the clause database installer
  - Whenever a new index is added/ dropped from a table
  - Whenever the system appears to be running slower than normal

Update Statistics (Cont.)

- Syntax:

```
update statistics <table_name>
```

  * Replace <table_name> with the name of the table that needs to be updated

- Example:

```
update statistics proc_object
```

Update Statistics Notes

- ScriptAid v1.4 utility contains an unsecured Update Statistics script that can be run by the user at anytime
- Download the ScriptAid utility from PD^2 Software Library at http://pd2.amsinc.com
- Update Statistics should only be run when no one is in the database

Recompile Stored Procedures

- Easiest way to improve the performance of stored procedures
- sp_recompile should be executed after updating statistics

sp_recompile (Cont.)

- Syntax:

```
sp_recompile <table_name>
```

  * Replace table name with the name of a table that needs recompiling

- Example:

```
sp_recompile proc_object
```

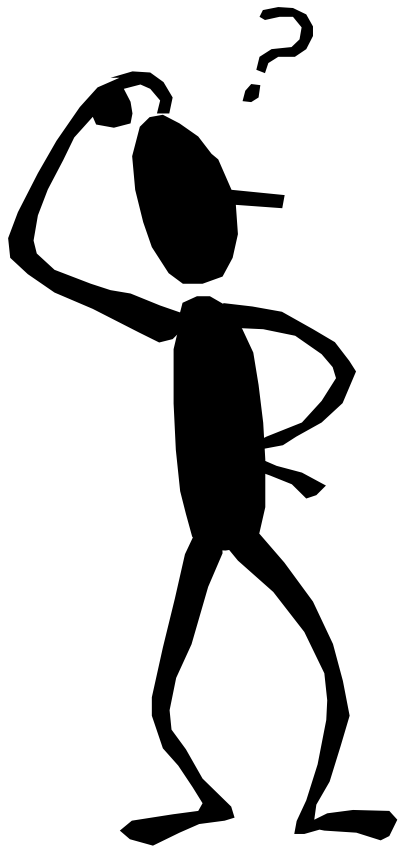
sp_recompile Notes

- Sp_recompile is currently not part of ScriptAid
- Consult your Server Maintenance Guide for instructions on running sp_recompile

Monitor Server Resources

- The following are basic tasks that can be performed to monitor the resources on the server:
  - Check disk space on all the drives
  - Perform regular virus scans on all system disks
  - Perform regular disk scans on all system disks
  - Check CPU usage on the server
  - Check Memory usage on the server
  - Check the event viewer and/or other system logs for errors

Questions



Thank You